

REMARKS

Claims 1 and 9-16 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTIONS UNDER 35 U.S.C. § 102 AND 35 U.S.C. § 103

Claims 9-12 and 14 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Otto (U.S. Pat. No. 3,586,340). Claims 1 and 9-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Polzin (U.S. Pat. No. 3,348,430) in view of Otto (U.S. Pat. No. 3,586,340). Claims 9-11 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Grörich (U.S. Pat. No. 3,973,781) in view of Weinand (U.S. Pat. No. 3,554,561). These rejections are respectfully traversed.

Each of independent Claims 1, 9 and 14 recite that the shaft includes "rounded bumps." In contrast, each of the cited references disclose only features on the shaft that have sharp edges. Specifically, Otto discloses triangular shaped features. The edge walls of these triangular features are angled to serve as pump impellers for pumping lubricant back to the source. Presumably, any modification of these side walls in order to round the sharp edges of these triangular shapes (or even to round the shape) would negatively impact this impeller performance. Thus, Otto does not disclose or suggest the rounded bumps on the shaft as claimed.

Similarly, the gist of the disclosure of Grörich are protrusions (which are not on the shaft and) that have flat contact surfaces with sharply angled top edges. See Col. 11, lines 33-43. Applicants additionally note that the prior art Figure 2b illustrates a

contact pattern when a prior art seal member is worn down (resulting from vanes extending parallel to the shaft) and does not illustrate protrusions on the seal member. See Col. 10, lines 4-18. Instead the seal member of this embodiment provides a flat surface against the shaft - not protrusions as claimed. Thus, none of the embodiments of Grörich disclose or suggest the rounded bumps on the shaft as claimed.

Lastly, Weinand is cited as disclosing the location of protrusions either on the seal member or on the shaft. The "protrusions" pointed to on the seal member extend parallel to the surface of the shaft, similar to the prior art embodiment of Figure 2b. Thus, they are not "protrusions" since the seal member provides a flat surface in contact with the shaft. The purpose of these sidewall grooves is to provide hydrodynamic forces for containing fluid within the reservoir. See, col. 2, lines 13-29. In that context, it may suggest moving other features to the shaft that also provide such hydrodynamic forces in a direction generally parallel to the shaft. Thus, Weinand discloses the use of triangular shaped sharp-edged members similar to those of Otto, in order to provide these parallel forces. However, this analysis is not relevant to the claimed "rounded bumps" on the shaft, which are not designed to generate such forces parallel to the shaft surface. Thus, Weinand also fails to disclose or suggest the rounded bumps on the shaft as claimed.

For all these reasons, Applicants respectfully assert that each of independent Claims 1, 9 and 14 are patentable over each of the cited references, either singly or in combination. Furthermore, each of the remaining claims depend, directly or indirectly, from one of these independent claims. Accordingly, Applicants respectfully assert that

each of the dependent claims is likewise patentable over the cited references for at least the reasons discussed above.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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